

- 5 five- or six-membered ring, and it being possible, when
m is 2, for an R¹-R⁹ radical of in each case one
triazacyclohexane ring to form together with a
substituent on the other triazacyclohexane ring a
bridge between the two rings,
- 10 X fluorine, chlorine, bromine, iodine, hydrogen,
C₁-C₁₀-alkyl, C₆-C₁₅-aryl or alkylaryl with 1 to 10 C
atoms in the alkyl radical and 6 to 20 C atoms in the
aryl radical, trifluoroacetate, BF₄⁻, PF₆⁻, or bulky
noncoordinating anions,
- m 1 or 2,
- 15 n a number from 1 to 4 which corresponds to the oxidation
state of the transition metal M
- is employed as component (A).
- 20 4. A process as claimed in any of claims 1 to 3, wherein M is a
transition metal of group 6 of the periodic table.
5. A process as claimed in any of claims 1 to 4, wherein
mixtures of ethylene with C₃-C₈- α -olefins are employed as
25 monomers.
6. A process as claimed in any of claims 1 to 5, wherein an
aluminoxane is employed as activator compound (B).
- 30 7. A process as claimed in any of claims 1 to 5, wherein a
borane or borate having at least 2 substituted aryl radicals
is employed as activator compound (B).
8. A process as claimed in any of claims 3 to 7, wherein at
35 least one of the radicals R¹, R² and R³ is different from the
other radicals in this group.
9. A catalyst for polymerizing olefins, comprising at least one
transition metal complex (A) as defined in claims 1 to 4, or
40 8 and a support material and, if desired, one or more
activator compounds (B).
10. A process for polymerizing or copolymerizing olefins wherein
the polymerization or copolymerization is carried out in the
45 presence of a catalyst as claimed in claim 9.

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11. A transition metal complex of the formula I as defined in claim 3, wherein at least one of the radicals R^1 , R^2 and R^3 is different from the other radicals in this group.

5 12. A transition metal complex of the formula I as defined in claim 3, wherein m is 2 and one radical R^1 - R^9 of one triazacyclohexane ring together with one of these substituents of the other triazacyclohexane ring forms a bridge between the two rings.

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13. The use of a complex of a transition metal as defined in any of claims 1 to 4, 11 or 12 in the copolymerization of ethylene or propylene together or with other olefinically unsaturated compounds.

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